

Parish. However, there has been considerable interest in Baton Rouge recently, expanding testing to the northern limits of the Basin.

At the beginning of every school year, the Foundation selects schools from all over the Pontchartrain Basin to participate in Water Watch for the year. The program is open to teachers within all sixteen Louisiana parishes of the Lake Pontchartrain Basin. Participation in the Water Watch program is voluntary and is based on accessibility to a canal, stream, or bayou that ultimately drains into the Lake. The Water Watch program trains teachers to administer standard water quality tests and provides testing equipment to each participating class/club. Throughout the academic year, the students conduct standard water quality tests under the supervision of their teachers. The students record their data and fax their results to the Foundation to be added to a central database. To ensure data quality, the students' methods are checked early in the school year by the LPBF Water Watch program coordinator. At the end of the school year, students analyze and present their data at a symposium, which is open to the public.

WATER QUALITY PARAMETERS

Five parameters of water quality are monitored in the Water Watch program, namely, dissolved oxygen (DO), fecal coliform bacteria, pH, nitrates, and phosphates. The U.S. Environmental Protection Agency (EPA) suggests the use of these standard parameters by volunteer monitoring groups who focus on streams. The five water quality parameters tested are associated with eutrophication potential and primary contact recreation (i.e. swimming) concerns. DO and pH are measured to determine general stream health, including the trophic state. Phosphates and nitrates indicate the water body's nutrient levels. Fecal coliform bacteria counts are taken as an indicator of the mammal, human or farm animal, waste entering the system. Lastly, air and water temperatures are measured and general observations of the surroundings are noted.

DATA ANALYSIS

An analysis of data from the first five years of the program has brought forth some trends within the Basin's waters. Due to the geographic distribution of the participating schools, spatial trends in water quality were compared. Two rural/developing north shore rivers were compared to eight drainage canals and one bayou on the Lake's urban south shore, and natural water bodies were compared to man-made. The rivers of the Lake's rural, yet developing, north shore were found to have lower pH and higher phosphate levels than the urban water bodies. The rivers drain pine forests, a natural phenomenon that could potentially cause the lower pH levels. High phosphate levels are possibly not a natural phenomenon with potential contributors including fertilizer and fecal coliform bacteria found in agricultural runoff and the inefficiency of small wastewater treatment plants and home septic systems in this rapidly developing area. Nitrate levels were found to be lower in the natural water bodies (including the two north shore rivers and the south shore bayous), yet all sites were within EPA limits.

Analysis of the cumulative data could also help identify potential areas of poor water quality

since the results of some of the parameters were found to be chronically outside of the EPA limits for some sites tested. Phosphate and fecal coliform bacteria levels were found to be chronically high in most sites tested. The agricultural runoff and inefficient sewer collection systems that raise phosphate levels could also contribute coliform to the system. Since high coliform levels were the major cause of the swimming bans, coliform levels are a main concern for primary contact. In addition, high phosphate levels can indicate over-nutrication, a phenomenon that



Students test the dissolved oxygen (DO) content in the water. The DO content is one of the parameters typically used to assess the health of a water body.

could aid in detecting potential "hot spots" to help direct resources to the appropriate areas.

Above being a potential public environmental service, the Water Watch program is an educational experience, supplementing school curricula with applied, hands-on science. As science curricula change to stress more applied science, the Water Watch program greatly complements the academic curriculum as it fits into national and state science academic standards. Most teachers find water quality testing quite adaptable to their lesson plans or clubs. Some schools have gone beyond water quality testing and have become involved in habitat restoration, problem identification, and even local environmental decision making.

Performing water quality tests on local water bodies enhances school curricula and involves students in local environmental issues. The process of the water quality testing and analysis introduces students to the scientific process while raising awareness of local environmental issues. The Water Watch program adheres to national science curriculum standards by encouraging students to engage in extended investigations. The program also complies with Louisiana state science education benchmarks by promoting long-term scientific investigation and exposing students to the concepts of analysis, interpretation, and presentation of data. Additionally, students become familiar with biological relationships like the interdependence of organisms and human impact on and protection of the environment. Student monitoring of the Lake Pontchartrain Basin provides a "real world" educational opportunity which acts as a link in the detection and correction of poor water quality, while providing education and public awareness of these issues.

HOW CAN YOU GET INVOLVED?

The data that the Water Watch program has collected around the basin for several years is now beginning to pay off. The program has already compiled a substantial database of information and we are looking forward to developing it into the future. The Water Watch program will be going high tech and continue to expand! Our data will soon be available on the LPBF website so that people all over the world can keep up with our progress. The schools will also be able to directly enter their data onto the website and contact each other through a message board. The program will also be offered to the remaining parishes in the Basin in the upcoming school year. It is our goal that the enthusiasm and knowledge shared by participating students will be passed on to others in the community with the continued expansion of the Water Watch program.

Any junior high and high schools within the Lake Pontchartrain Basin that may be interested in joining the Water Watch program, please contact Andrea Bourgeois at the Lake Pontchartrain Basin Foundation (504) 836-2238! Participating classes are provided free water quality testing supplies and field trips!